

### Abstract

The invention is directed to a device for direct detection of the spatial position of a probe element in a multi-coordinate measuring apparatus, with a reference system comprised of at least one first standard and one second standard that are associated with coordinate axes of the measuring apparatus. The first standard is a planar standard with a line grating array. The second standard is non-contacting relative to the first standard and movable in two dimensions by means of a cross slide. Provision is made for a first position measuring system for determining the spatial position of the second standard with respect to the first standard, and for a second position measuring system for determining the spatial position of a carriage carrying a three-dimensional probe assembly, with respect to the second standard. The device forms in an associated multi-coordinate measuring apparatus a continuous measuring chain from the first standard to the tip of the probe element. This supplies directly a measurement result considering any guide inaccuracies, without the need to perform any path corrections.